



PLANT MATERIALS TODAY

A Quarterly Newsletter of the Montana-Wyoming Plant Materials Program

Volume 10 Number 1

January 2003

This is a quarterly field office newsletter to transfer plant materials technology, services, and needs. The plant materials personnel will be featuring short articles on project results, new cultivar releases and establishment techniques, seed collection, and field planting needs, etc. All offices are encouraged to submit articles about plant material-related activities relative to plant performance, adaptation, cultural and management techniques, etc. Direct inquiries to USDA NRCS, Plant Materials Center, RR2 Box1189, Bridger, MT 59014, Phone 406-662-3579, Fax 406-662-3428; or Larry Holzworth, Plant Materials Specialist, USDA NRCS Montana State Office, Federal Bldg., Rm 443, 10 East Babcock Street, Bozeman, MT 59715-4704, Phone 406-587-6838, Fax 406-587-6761

Plant Materials and the New Farm Bill

Tom Helm recently created 350 acres of upland game bird habitat on his property as part the Farm Bill's Wildlife Habitat Incentives Program (WHIP). The Toston, Montana, seed grower knew the project's success depended on the type and establishment of ground cover he planted. He chose 'Trailhead' basin wildrye, selected and released by the Natural Resources Conservation Service (NRCS) Plant Materials Program. 'Trailhead' is a wonderful, underutilized grass that provides good habitat for pheasants and Hungarian partridges," Helm says. Like the other Farm Bill programs, WHIP projects often require new or enhanced plantings. Plants play an important role in conservation, offering a natural solution for stabilizing soil, improving water quality and providing food for livestock and wildlife. Farm Bill programs like the Conservation Reserve Program (CRP), Environmental Quality Incentives Program (EQIP) and Wetlands Reserve Program (WRP) rely on the right plant to effectively solve local resource concerns.

Bridger's Farm Bill Performers

The following plants are just a few examples from the hundreds of Plant Materials species used in Farm Bill programs. '**Critana**' thickspike wheatgrass provides erosion control, competition against invasive plants, and enhances wildlife habitat in dryland conditions. In 2000-02, landowners planted about 245,000 acres of Critana as part of Farm Bill programs. '**Rimrock**' Indian ricegrass stabilizes sandy soil and produces an abundance of seed for upland gamebirds and songbirds. In 2000-02, Rimrock germinated on over 120,000 Farm Bill acres. '**Bozoisky**' Russian wildrye is a very drought species that provides early spring grazing and maintains nutritive value throughout the summer. In 2000-02, landowners planted

over 86,000 acres of Bozoisky as part of Farm Bill programs. '**Rosana**' western wheatgrass is used extensively for reseeding depleted rangelands, minelands, and abandoned cropland. In 2000-02, Rosana germinated on nearly 25,000 Farm Bill acres. '**Trailhead**' basin wildrye provides excellent cover for upland gamebirds and good winter forage for wildlife such as elk, deer and bighorn sheep. In 2000-02, more than 16,000 acres were seeded as part of Farm Bill programs.

Jody Holzworth, National Plant Materials' Public Affairs Specialist

2002 Foundation Seed Distribution

The Bridger PMC is responsible for the production of Foundation seed of all its releases for as long as there is a demand for that plant material by the commercial seed industry. During 2002 a total of 4,348 pounds of Foundation seed of 14 releases were shipped to growers in 7 states. Foundation seed is turned over to the Foundation Seed Programs of Montana State University and the University of Wyoming. The money generated by the sale of this seed goes toward the funding of research related to seed production or the marketing of commercial seed. Presently two Masters graduate programs are being funded at MSU.

Foundation seed for Wyoming growers is requested through Mike Moore 307.754.9815, and for all other states through Bill Grey 406.994.5687. Seed is distributed on a first-come-first-serve basis, but with preference to Montana and Wyoming growers. Allocations are made in February and March each year. Foundation seed that is presently available for 2003 includes:

'**Garrison**' creeping foxtail
'**Critana**' thickspike wheatgrass
'**Rosana**' western wheatgrass
'**Goshen**' prairie sandreed
'**Shoshone**' beardless wildrye (fall planting only)
'**Bozoisky-Select**' Russian wildrye
'**Pryor**' slender wheatgrass
'**Trailhead**' basin wildrye
Washoe (Selected) basin wildrye
'**Rimrock**' Indian ricegrass (fall planting only)
High Plains (Selected) Sandberg bluegrass
Foothills (Selected) Canada bluegrass
'**Lutana**' cicer milkvetch
Antelope (Tested) slender white prairieclover

Old Works (Source ID) fuzzytongue penstemon
Open Range (Tested) winterfat
'Wytana' 4-wing saltbush
Prospectors (Selected) common snowberry
Bridger-Select (Selected) Rocky Mountain Juniper
Hunter (Selected) ponderosa pine

Names enclosed in '---' are cultivar releases, while all others enclosed in (---) were released under one of the three Pre-Varietal natural germplasm options.

Mark Majerus

2002 Commercial Seed Production of NRCS Released Germplasm in Montana and Wyoming

In Montana and Wyoming, the estimated commercial seed production of certified and common seed of nine Bridger PMC released cultivars totaled 1,276,095 pounds generating revenues of \$4,711,456. Montana growers produced 1,061,095 pounds of nine cultivars generating \$4,064,086--61% of the total pounds and 67% of total monies of all NRCS cultivars produced in Montana. Wyoming growers produced 215,000 pounds of six Bridger cultivars worth \$647,370--41% of the total pounds and 36% of total monies of all NRCS cultivars produced in Wyoming.

The estimated commercial production of certified seed of 25 Colorado, Idaho, Montana, New Mexico, and Washington NRCS releases in Montana was 1,479,040 pounds of certified and 272,000 pounds of common seed. Total revenues generated in Montana were \$6,094,832. In Wyoming, there was 524,450 pounds of 26 NRCS releases generating revenues of \$1,816,853.

The most dollars generated from seed sales in Montana were 'Rimrock' Indian ricegrass (34%), 'Bozoisky-Select' Russian wildrye (13%), and 'Hycrest' crested wheatgrass (12%). In Wyoming it was Bozoisky-Select Russian wildrye (11%), 'Garrison' creeping foxtail (9%), and 'Critana' thickspike wheatgrass (8%).

Seed of these conservation plants was available on the commercial market for pasture improvement, Conservation Reserve Program, erosion control after wildfires, roadside revegetation, mined land reclamation, etc. The amount of revenues generated by the commercial seed production of NRCS conservation plants provided a viable enterprise for Montana and Wyoming farmers.

Susan R. Winslow

A Call for Field Plantings

The Plant Materials (PM) Program depends on landowner participation to field test new selections of grasses, forbs, and woody plants. This happens by working with local conservation districts and NRCS field offices that are routinely in contact with local cooperators. This unique relationship allows us to field test new plant materials in a "real world" setting on Montana and Wyoming farms and ranches before releasing them to the public.

The PM program has nine grasses and one shrub in need of field testing in Montana and Wyoming. Accessions 9005438 and 9005439 switchgrass *Panicum virgatum*, Foothills Canada bluegrass *Poa compressa*, High Plains

Sandberg bluegrass *Poa secunda*, Garnet mountain brome *Bromus marginatus*, 'Rush' intermediate wheatgrass *Thinopyrum intermedium*, 'NewHy' hybrid wheatgrass *Elymus hoffmannii*, 'Goldar' bluebunch wheatgrass *Pseudoroegneria spicata* ssp. *spicata*, 'Bannock' thickspike wheatgrass *Elymus lanceolatus* ssp. *lanceolatus*, Open Range winterfat *Krascheninnikovia lanata*, and common yarrow (accession 9057902) *Achillea millefolium*. The accessions of switchgrass, Canada and Sandberg bluegrass, mountain brome, winterfat, and yarrow are the newest plant materials identified to help solve the resource concerns listed in the Bridger PM long range plan. Applications are due to me by February 15, 2003.

The Wyoming State Plant Materials Committee meeting is tentatively scheduled to begin at 1:00 pm, March 11, and will conclude at noon on March 12. The meeting will take place at the NRCS State Office in Casper. The Montana State Plant Materials Committee meeting is tentatively planned during the week of March 3rd.

Larry K. Holzworth

Sweetgrass Adaptation Trial

The Bridger PMC has joined forces with four neighboring PMCs to test the regional adaptation of sweetgrass *Hierochloa odorata*. In spring 2002, Bridger received plants from the PMCs at Bismarck, ND, Manhattan, KS, Meeker, CO, and Roselake, MI. South Dakota State University released the commercial variety, 'Radora', in 1998 and it has been included in the study as the standard of comparison. In turn, Bridger sent plants to each of the PMCs for testing in their respective environments.

All plants were lined out in short rows with ample space allowed for spreading, and then sprinkler irrigated twice weekly over the summer. An initial evaluation conducted in October at Bridger looked at several performance factors including survival, vigor, establishment, rate of spread, tiller development, and leaf length. The overall ranking from best to worst was Montana, Michigan, Colorado, Kansas, North Dakota, and Radora.

Preliminary results from North Dakota showed the Colorado and Montana collections performing well. Colorado reported that the Montana entry survived a sneaky attack of glyphosate (Roundup™)! Michigan indicated that all transplants had survived, and Kansas had poor overall survival due to the effect of an ongoing drought. The Centers are expected to carry on their appraisal of sweetgrass through 2004.

There is a continued interest in sweetgrass as a culturally significant plant for use in religious and spiritual ceremonies, as well as in a variety of medicinal treatments. Montana is gearing up for the 2004 bicentennial celebration of the Lewis and Clark Expedition and it is anticipated that sweetgrass will play a vital role in the festivities.

Susan R. Winslow

Product Limitations

An article in the November 2002 Plains and Prairie Forestry Association of North America Newsletter by Craig Stange, NRCS State Forester in North Dakota, on the limitations of

weed barrier got me thinking about the drawbacks of several commercial products used to enhance various vegetative practices. It's something that Bob Logar, NRCS State Staff Forester in Montana, and I have observed and discussed for a couple of years now. Although these products are by far more beneficial than harmful, most have one or more limitations worth noting. In our enthusiasm to promote conservation activities, we sometimes forget to mention these potential problems to customers; a mistake that may lead to reduced landowner confidence should they fail. It's difficult to find a plant survival or growth enhancing practice that doesn't have some limitation. Bark mulch applied too heavily can limit oxygen exchange to plant roots, or when mounded around the base of trees can lead to rot and rodent damage. Excessive amounts of peat moss added to low-organic matter soils can create hydrophobic conditions or limit the movement of water within the soil profile because of differences in soil texture. Too much fertilizer salts can burn roots, thereby limiting water and nutrient uptake. The list goes on.

There are several products that conservationists regularly recommend that nearly always work well, but require monitoring, adjustment, or removal over time. Weed barrier is one such product. Craig noted two problems with weed barrier. The first is stem girdling as the trunk expands into the edge of the opening made for the seedling. The holes are adequate when the seedlings are small, but become restrictive as the tree grows. The choices are 1) make a larger initial "X" opening and live with the weeds or 2) enlarge the opening over time. If mulch is used over top of barrier, the first option may result in good weed control without the resultant girdling. If weed barrier has become embedded in the trunk, pliers may be needed to remove it. The second problem that Craig noted was the inhibiting of sprouts from suckering shrubs. Suckering is a valuable trait for site stabilization and wildlife cover. Species such as serviceberry *Amelanchier alnifolia*, lilac *Syringa*, silver buffaloberry *Shepherdia argentea*, and occasionally chokecherry *Prunus virginiana* are susceptible. Although not mentioned in his article, other suckering shrubs such as silverberry *Elaeagnus commutata*, snowberry *Symphoricarpos albus*, redosier dogwood *Cornus sericea*, Russian almond *Prunus tenella*, and other species may be at risk. Problems were not noted with American plum *Prunus americana*.

Tree shelters are another group of products that require some amount of follow-up monitoring. Although these devices provide valuable wind and animal protection for new plantings, several problems have emerged over time. Solid cones can delay hardening-off prior to winter by creating a mini-greenhouse effect. Seedlings that are not fully dormant as winter arrives may show signs of tip die-back the following spring, or worse, may not survive. The

solid cones also limit lateral stem movement, resulting in a seedling that is sometimes unable to support itself upright once the shelter is removed. Reports of successes and failures vary widely by plant species and location. I have been told that a ventilation feature has been added to solid cones to alleviate this problem. Bob and I have noted problems with the plastic netting type shelter while conducting our annual evaluation of the bur oak provenance study at the PMC. The first problem involves branches and leaders that become entangled in the shelter's netting. The branches curl or produce a distorted growth pattern as they mature. The only method of discouraging this problem is periodic inspection and adjustment of the shelter in the area of the exiting stem. The second observed problem is girdling of stems after about the fifth year in the field. The shelters are supposed to photo-degrade over time as the seedlings grow and expand. Although most shelters did become brittle, some retained enough strength to cause significant stem damage. It is also possible that affected stems not killed by girdling may be weakened and susceptible to breakage under snow and wind load. Embedded plastic should be removed as soon as possible with pliers and a sharp knife. A third potential problem, for all types of shelters, is the accumulation of leaves that may harbor rodents that could subsequently girdle the base of the main stem. Fall cleaning corrects this problem.

Keep these and other practice limitations in mind when developing conservation plans and selling ideas to cooperators. By painting a complete picture of a proposed activity, you increase your chances of project success, as well as protecting your credibility and that of our agency.

Joe Scianna

Rocky Mountain Juniper Harvest

Thanks to all those that helped make the 2002 Bridger-Select Rocky Mountain juniper seed harvest a success including Will Murray, Valerie Robertson, Mindy Gauthier, Phil Sandoval, Margie McClurg (Earth Team Volunteer), Bob Logar, Larry Holzworth, and Mark Majerus. Additional thanks to Dave Heilig and Larry Holzworth for coordinating the effort. Thanks also to Larry Sticka for spending 70 to 80 hours cleaning the seed. All "technical competency" joking aside, no juniper seed would have meant no seedling production, which would have meant less and inferior conservation on the ground. It required 120+ person hours to collect 333 pounds of fruit, which yielded 48 pounds of bulk seed. If the viability is 50 percent (I don't have a viability test back yet), that will equate to 24 pounds PLS X 28,000 seeds/pound or 672,000 juniper seedlings. That's a 1,273-mile long Rocky Mountain juniper windbreak at 10-foot within-row spacing.

Joe Scianna

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